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REPORT OF THE INTERGOVERNMENTAL GROUP OF EXPERTS ON TUNGSTEN ON ITS THIRD SESSION

held at the Palais des Nations, Geneva
from 7 to 8 November 1994

CONTENTS

Chapter		Paragraphs
	Introduction	1 - 3
I.	Examination of statistics and review of the current market situation and medium- and long-term outlook	4 - 20
II.	Consideration of project proposals by Governments and industry which could be submitted for possible financing under the Second Account of the Common Fund for Commodities, including consideration of other ways, means and measures to improve the functioning and stability of the tungsten market through strengthened international cooperation between Governments and industries of producing and consuming countries	21
III.	Organizational matters	22 - 28
	Annex	
	Membership and attendance	

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INTRODUCTION

1. The third session of the Intergovernmental Group of Experts on Tungsten was held at the Palais des Nations, Geneva, from 7 to 8 November 1994. In the course of the session, the Intergovernmental Group of Experts held two plenary meetings.

Opening statement

2. The **Officer in Charge of the Commodities Division of UNCTAD** noted that the Group's purpose was to provide a forum for representatives of Governments and industry in both producing and consuming countries and thus foster interaction and consultation. The main task before the Group was to review the current market situation and focus on ways to improve market transparency and strengthen cooperation. Fundamental structural changes had occurred over the last 10 months in the tungsten industry with implications for stability and security of supply. The tungsten market seemed to be emerging from a situation of low prices in the 1980s and early 1990s to one of high prices. The reasons had to be ascertained as well as whether the rise would be short-lived or whether it marked a fundamental long-term shift. Might it, for instance, lead to the reopening of mines that had been closed down for some 15 years? China remained by far the world's largest supplier of tungsten and so the absence of a representative from that country at the session was particularly felt. The Russian Federation was emerging as a supplier of tungsten material in the international market that might seriously rival China in future, according to some analysts and so an understanding of essential aspects of the Russian tungsten industry, as well as of that of Kazakhstan, would offer valuable insights, given the size of their tungsten resources. As the market was increasingly price-driven, future developments would greatly depend on prices and differentials between prices of concentrates and intermediate products. During the first 10 months of 1994, ammonium paratungstate prices rose by 181 per cent in Western Europe and by 123 per cent in the United States. Over the same period, concentrates' prices rose by just 51 per cent but were still largely unremunerative for most producing countries. Mine production had fallen to less than 9 per cent for the developed countries and less than 18 per cent for the developing countries in comparison to the level of the early 1980s.

3. He concluded by stressing the importance of obtaining reliable and accurate statistics for market transparency and urged member countries to provide factual data so that the secretariat would not need to depend so much on estimates.

Chapter I

EXAMINATIONS OF STATISTICS AND REVIEW OF THE CURRENT MARKET SITUATION AND MEDIUM- AND LONG-TERM OUTLOOK

(Agenda item 3)

4. For its consideration of this item, the Intergovernmental Group of Experts had before it the following documentation:

"Review of the current market situation and medium and long-term outlook - Report by the UNCTAD secretariat" (TD/B/CN.1/TUNGSTEN/10);

"Tungsten statistics - UNCTAD Annual Bulletin" (TD/B/C.1/TUNGSTEN/STAT/L.61); and

"Tungsten statistics" (UNCTAD/DMS/Misc.10).

5. Regarding the examination of statistics, a **representative of the UNCTAD secretariat** introduced TD/B/C.1/TUNGSTEN/STAT/L.61. He also called attention to a complementary quarterly bulletin which contained data that the secretariat had received after the annual bulletin had been issued (UNCTAD/DMS/Misc.10). The Group was invited to examine, update, revise and strengthen the statistics provided by the secretariat. These statistics came mainly from four sources: replies received from Governments in response to the secretariat questionnaire; official and national publications; publications of international organizations such as the United Nations data bank and the International Tungsten Industry Association; and periodicals specialized in minerals and metals. When such statistics were not available from these sources, an attempt was made to find accurate estimates but these varied greatly from country to country.

6. During 1994, the secretariat had received replies to its questionnaire from 18 countries among a total membership of 29 countries. He thus urged those countries which had not yet been able to transmit their replies still to do so. In this regard, he noted that despite the shortcomings regarding some estimates, the secretariat statistics represented the only continuous series available internationally covering tungsten since the early 1960s.

7. A great change had occurred in trade in tungsten. There had been a phenomenal structural shift in trade volumes away from ores and concentrates into intermediate tungsten products. The need for product statistics for market transparency would continue to grow in importance as the structural shift in the tungsten industry became more pronounced. He urged all member Governments to pay as much attention as possible to the statistics on products when they filled in the secretariat questionnaire.

8. For the review of the current market situation and the medium- and long-term outlook, he called attention to TD/B/CN.1/TUNGSTEN/10. The world tungsten market had experienced a sharp jump in prices since the beginning of 1994 compared with the low prices of 1992 and 1993. However, the tungsten industry was far from showing complete recovery. Very few of the closed-down mines, which had been victims of harsh price conditions in previous years, had

reopened. Demand for tungsten had still to gather strength in many major consuming countries. The recent shift in market conditions for tungsten in 1994 was largely owing to the higher performance of the world economy. The improved world economic conditions had led to higher consumption in many tungsten-consuming sectors, including the automotive industry; nevertheless, some weakness persisted in the mining and construction industries. As a result of poor demand between 1989 and 1993, world mine production had fallen drastically. The fall had been most serious in the market-economy countries. In 1993, production levels in developed market-economy countries and developing countries were, respectively, less than 9 per cent and 20 per cent of the levels at the beginning of the 1980s, which meant that, respectively, more than 90 per cent and 80 per cent of the mine capacities in these two groups of countries were either closed or idle. Major tungsten-producing provinces in China had also been affected by mine closure. In Jiangxi province, the Pangushan, Dajishan and Xihuashan, among the largest mines in China, were reported to have been closed down recently. All tungsten mines in Guangdong province, including the Shanhu mine, were also reported closed down. The drastic cutbacks in mine production had reduced the abundant supply of material, which characterized the tungsten market in 1991-1993. It had also led to drawdowns in stocks.

9. As regards international trade, tungsten material was increasingly traded in the form of intermediate products, currently amounting to 20,000 to 25,000 metric tons, compared to less than 3,300 metric tons in ores and concentrates. He noted the reversal in the market situation which until recently had witnessed competitive offers of intermediate products. The tap of abundant supply had apparently dried up in 1994, resulting in a sharp rise in prices for intermediate products. Ammonium paratungstate prices jumped by 181 per cent in Western Europe and 123 per cent in the United States in 1994. This price hike for intermediate tungsten products had repercussions on concentrate prices although the increase in the latter was much more modest, amounting to 51 per cent over the same period. Despite the increase, concentrates prices remained by and large not sufficiently remunerative to induce a reopening of closed-down mines.

10. He then drew attention to the analysis of recent price trends presented in the secretariat report. Tungsten prices had completed a full cycle between 1960 and 1993. The next phase would probably be a period when the tungsten market might enter a more permanent phase of rising prices. The report also examined the relationship between ammonium paratungstate (APT) prices and concentrate prices. For most of the period 1992-1993, APT had been virtually available at concentrate prices. In contrast, the recent large hikes in APT prices had created an entirely different situation, resulting in a substantial premium above conversion costs. It remained to be seen whether the large price differential would be sufficient to attract some owners to consider the reopening of conversion plants.

11. In conclusion, he observed that tungsten was finishing 1994 less morose than in previous years. The problem of abundant supply was disappearing. If the recovery of the world economy further strengthened, as recent forecasts predicted, the market outlook would see the consolidation of recent improvements. However, with mine production at its lowest level in many

years, the market could face serious instability ahead, especially in the event of sharp increases in world tungsten demand before stability was reached.

12. The representative of the **United States of America** stated that total domestic tungsten consumption was expected to be 8,400 metric tons in 1994, an increase of 18 per cent over the 1993 level. This was still below the level of previous recoveries. Demand for cemented carbide end-use products had been particularly strong in the first half of 1994 as compared to the previous year, while demand in most other end-use sectors had remained constant. In the first half of 1994, the quantity of United States imports of tungsten ores and concentrates had declined by 35 per cent over the level of 1993. Bolivia and Peru had been the main sources, but Russia had supplied approximately 25 per cent of the total, whereas it had exported no material to the United States in the previous year. Imports of tungsten oxide from Russia had also increased significantly to almost half of the total imports, while China had supplied the balance. Continued, albeit modest, economic growth in 1995 would probably raise United States demand for tungsten, but the implications in terms of domestic production levels for primary and intermediate tungsten products were unclear.

13. The representative of **Japan** said that domestic production of tungsten metal had declined in 1993 owing to the economic slowdown and to the relocation outside the country of automobile and household electric machinery industries. Japan's imports of tungsten ore had fallen by 35 per cent, to 459 metric tons, originating mainly from Portugal and China; the country's imports of ammonium paratungstate had decreased by 1.6 per cent to 3,491 metric tons, coming basically from China. Nevertheless, the demand for tungsten metal and for cemented carbide had shown a slight increase in 1993, with the latter reaching the record level of 3,491 metric tons. However, Japanese industries were faced with increased requirements for new hard materials, which were difficult to cut and drill. In order to meet the ensuing demand for high-speed and high-precision tools, the country was undertaking research and development into tungsten-free manufacturing.

14. The representative of **Portugal** stated that the only mine which was still in operation had suspended its activity at the end of 1993 because of low market prices. However, the process of closing down the mine totally was stopped in June 1994 after a company bought the share of ownership of Minorco in Beralt, the company which owned the mine. At present, whether the mine would be closed down definitively or would restart operation, now that market conditions had begun to improve, remained uncertain. Therefore, the work of this Group of Experts for improved transparency and better understanding of the tungsten market was fundamental.

15. Mr. Peter K. Johnson, Director of Marketing and Public Relations of the Metal Powder Industries Federation, made a presentation on the theme "United States tungsten demand grows in the face of a shrinking raw materials base". He said that tungsten concentrate shipped from mines in the United States had come to a halt in 1986, according to the United States Bureau of Mines statistics. During the 1970s and early 1980s, there were approximately four mines operating in the United States: in the states of

Nevada, California and Colorado. Today, Stratcor's Pine Creek Mine in California remained the only mine capable of being put into production within a reasonable period of time (six months and a significant investment). This mine had about 8 to 10 years of proven reserves. On a historical note, during the mid-1950s there had been as many as 740 tungsten mines operating in the United States. For raw material needs, United States producers of tungsten products must rely on scrap and imports of 7,000 metric tons of tungsten (concentrate, APT, tungsten oxide and ferrotungsten) from countries such as China, Peru, Bolivia and Russia.

16. The United States Defense National Stockpile contained an inventory level of 82,312,516 pounds of tungsten. The official stockpile goal for the metal remained at 70,900,000 pounds. The Fiscal Year 1995 Annual Materials Plan, released in September 1994 by the Defense National Stockpile Center, contained no disposal authority to sell any tungsten from the stockpile. Nor was there real pressure to sell tungsten from the stockpile, at least through fiscal year 1996.

17. Tungsten demand is expected to be 25 to 30 per cent higher in 1994 than in 1993 and up possibly another 10 to 15 per cent in 1995. China continued to provide the bulk of tungsten supply to the United States. Almost all market economy countries mines had been closed because of the glut of materials on the market in recent years. The concern over adequate supplies of tungsten to meet rising demand was a common thread running through the entire United States industry and its major customers.

18. Turning to developments in various sectors of the United States tungsten industry, there were two companies supplying ammonium paratungstate (APT). Another APT producer had temporarily closed its plant. Approximately 90 per cent of the APT consumed in the United States was reduced to tungsten metal powder, of which approximately 65 per cent was converted to tungsten carbide powder. Six companies produced tungsten and tungsten carbide powders. United States consumption of concentrates and imports of APT, oxide and ferrotungsten were expected to reach an estimated 8,000 metric tons in 1994, about 20 to 25 per cent higher than in 1993. Output of products made from tungsten would probably reach 10,000 metric tons. The tungsten carbide market dominated the tungsten business in the United States, accounting for 60-65 per cent of the total market. This market, through the early part of the twenty-first century, was expected to grow between 2 and 4.5 per cent annually. Some experts believed that the long-term trend in metal cutting was down because the United States industrial base was changing and new materials such as cermets and ceramics were slowly chipping away at the tungsten carbide business. Moreover, new improved coating systems for tungsten carbide had obviously extended the life of cutting tools, diminishing demand for replacement products. However, there were also new applications. Overall the tungsten carbide business was very strong and should remain so into 1995. As the United States economy continued to grow, 1994 could be the best year for the country's auto industry since 1988, with projected car and truck sales above 15.5 million units. The tungsten heavy alloy business was down to about

five competitors in the United States. It faced a shrinking market owing to cutbacks in defence business and severe overseas competition for aircraft applications such as counterweights. The oil drilling business was quiet, with the latest United States oil rig count in the 835 range.

19. A potential new market for tungsten heavy metal and pure tungsten metal could be as a replacement for lead in munitions and sporting goods applications. Typical potential applications included fishing weights, medical x-ray covers and sporting arms ammunition. Environmental pressures were forcing companies to seek other higher density materials to replace lead. Electrical and electronic applications, such as coating of computer chips, integrated circuits and heat sinks were other new uses. There appeared to be growing interest in metal injection molding (MIM) for small but highly complex tungsten carbide cutting tools and wear parts. MIM was also a growing sector within the powder metallurgy industry which utilized fine metal powders, typically less than 20 micrometres, intermixed with thermoplastics, waxes and other ingredients. In contrast to conventional powder metallurgy, these polymeric binder materials might comprise as much as 40 per cent by volume of the mixture. When the resulting feedstock is granulated it is fed into a conventional injection molding machine. Following binder removal, parts are sintered in either atmosphere or vacuum chambers, usually in excess of 1260 degrees Celsius. Complex parts of up to 100 grams were commonly produced. The technology was growing worldwide and had a bright future. Another development was the production of nanoscale tungsten carbide powder with an average particle size distribution of 0.2 micrometres. The smaller powder grains imparted a much harder quality, increasing cutting-tool life by two to seven times.

20. In conclusion, he said that the tungsten industry in the United States had experienced a turbulent period of peaks and valleys and corporate consolidations. The industry faced challenges for the future, but it was hoped that tungsten would continue to play a vital role in a growing national economy.

Chapter II

CONSIDERATION OF PROJECT PROPOSALS BY GOVERNMENTS AND INDUSTRY WHICH COULD BE SUBMITTED FOR POSSIBLE FINANCING UNDER THE SECOND ACCOUNT OF THE COMMON FUND FOR COMMODITIES, INCLUDING CONSIDERATION OF OTHER WAYS, MEANS AND MEASURES TO IMPROVE THE FUNCTIONING AND STABILITY OF THE TUNGSTEN MARKET THROUGH STRENGTHENED INTERNATIONAL COOPERATION BETWEEN GOVERNMENTS AND INDUSTRIES OF PRODUCING AND CONSUMING COUNTRIES

(Agenda item 4)

21. No project proposals were submitted under this item.

Chapter III

ORGANIZATIONAL MATTERS

A. Opening of the session

22. The third session of the Intergovernmental Group of Experts on Tungsten was opened on 7 November 1994 by the Chairman of the second session.

B. Election of officers

(Agenda item 1)

23. At its 1st meeting, on 7 November 1994, the Intergovernmental Group of Experts re-elected **Mr. E. Orbegoso** (Spain) as its Chairman and elected **Mr. V. Skliarov** (Russian Federation) as its Vice-Chairman-cum-Rapporteur.

C. Adoption of the agenda

(Agenda item 2)

24. At the same meeting, the Intergovernmental Group of Experts adopted its provisional agenda (TD/B/CN.1/TUNGSTEN/9) as follows:

1. Election of officers

2. Adoption of the agenda

3. Examination of statistics and review of the current market situation and medium- and long-term outlook

4. Consideration of project proposals by Governments and industry which could be submitted for possible financing under the Second Account of the Common Fund for Commodities, including consideration of other ways, means and measures to improve the functioning and stability of the tungsten market through strengthened international cooperation between Governments and industries of producing and consuming countries

5. Provisional agenda for the fourth session of the Intergovernmental Group of Experts on Tungsten

6. Other business

7. Adoption of the report of the Intergovernmental Group of Experts to the Standing Committee on Commodities.

D. Provisional agenda for the fourth session of the Group

(Agenda item 5)

25. At its 2nd (closing) plenary meeting, on 8 November 1994, the Intergovernmental Group of Experts adopted the draft decision contained in TD/B/CN.1/TUNGSTEN/L.5 and agreed to incorporate this decision in the report of its session as follows:

Decision adopted by the Intergovernmental Group of Experts on Tungsten

In view of the insufficient participation in the work of the Intergovernmental Group of Experts on Tungsten, particularly at its second and third sessions, the Group decided to remit to the fourth session of the Standing Committee on Commodities the determination of the date for the fourth session of the Group. The Group also requested that the secretariat pursue its collection and dissemination of statistics on tungsten, and its review of the tungsten market, and requested members of the Group to assist the secretariat in this respect.

E. Other business

(Agenda item 6)

26. No points were raised under this agenda item in the course of the session.

F. Membership and attendance

27. For the membership and attendance list, see annex.

G. Adoption of the report of the Intergovernmental Group of Experts to the Standing Committee on Commodities

(Agenda item 7)

28. At its 2nd (closing) plenary meeting, on 8 November 1994, the Intergovernmental Group of Experts adopted its draft report (TD.B/CN.1/TUNGSTEN/L.4) and authorized the Rapporteur to complete the report to reflect the proceedings of the closing plenary.

Annex

MEMBERSHIP AND ATTENDANCE a/

1. The following States members of UNCTAD, members of the Intergovernmental Group, were represented at the session:

Austria
France
Germany
Italy
Japan
Portugal
Republic of Korea
Russian Federation
Spain
Thailand
Turkey
United Kingdom of Great Britain and Northern Ireland
United States of America

2. The following other States members of UNCTAD, not members of the Intergovernmental Group, were represented as observers at the session:

Cuba
Democratic People's Republic of Korea
India
Ireland
Norway
Oman
Pakistan
Panama

3. The following specialized and related agencies were represented at the session:

International Monetary Fund
General Agreement on Tariffs and Trade

4. The following intergovernmental organization was represented at the session:

European Community

5. The following non-governmental organization was represented at the session:

General Category

World Federation of United Nations Associations.

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a/ For the list of participants, see TD/B/CN.1/TUNGSTEN/INF.3.